Remarks

Claims 13–16 and 27–40 remain pending in the application. In the Office action dated Jan. 31, 2008, claims 13–16 and 30-40 were rejected as indefinite for failing to define PPS and Hunter Gloss, and as obvious over Kayser et al. (5,669,295).

What is the definition of PPS? Dr. John Parker invented the Parker Print-Surf (PPS) roughness tester, which is well known to those skilled in the art as shown by the attached web page print-out of http://www.testingmachines.com/pdf/58-06-parker-print-surf.pdf. The Parker Print-Surf was developed in 1964 by John Parker, see *Label & Narrow Web*, Nov-Dec, 2007, reproduced at:

http://www.entrepreneur.com/tradejournals/article/172339369.html

What is the definition of Hunter Gloss? In 1939 Hunter and Jude developed 60° method of measuring gloss which was adopted by the American Society of testing and materials as ASTM Standard D523, and in 1937 the paper industry adopted a 75° specular-gloss method because this angle gave the best separation of coated book papers, which was subsequently adopted as TAPPI method T480, http://www.tappi.org/s_tappi/doc_bookstore.asp?CID=7371&DID=517410 (see US 6,018,396, col. 1, lines 54–59, col. 2, lines 18–23). ASTM Standard D1223-93 (2006) also provides a method of measuring the specular gloss of paper at 75° see ASTM Standard D1223-93 (http://www.astm.org/cgi-bin/SoftCart.exe/DATABASE.CART/REDLINE_PAGES/D1223.htm?L+mystore+ibpt2188+1207341761). US 6,908,531 specifically referred to "Hunter gloss 75°" (col. 1, lines 22-24); US 6,413,371 referred to "Hunter gloss units, measured in compliance with the Tappi 4/80 *[sic 480]* M-90 method" (col. 2, lines 62–63); US 6,258,214 refers to "gloss values of 48 to 50 Hunter gloss points" (col. 8, lines 17-18). Thus it is clear how, in the context of the claims, a person of ordinary skill in the art would understand the term "Hunter gloss"

Thus PPS and Hunter Gloss are terms well known in the art of paper making and no more need definition in the specification than other units commonly known to those skilled in

the art, though they may be obscure to those outside a particular field.

The independent **claims 13 and 27** are directed to a method of calendering a web in a calender consisting of a first stack of either 3 or 5 rolls followed by a second stack of at least 5 rolls.

As the examiner points out, Kayser shows a method of calendering in a calender consisting of a first stack of five rolls and a second stack of five rolls. However, applicant also sets forth in **claims 13 and 27** a method of adjusting the number of calendering nips used without changing the threading path of the calender. This is not suggested by Kayser and the examiner misreads Kayser to arrive at the conclusion "Kayser discloses that the calender rolls are adjusted *and number of working nips are adjusted* (col. 3, lines 8-23, and cols. 3-5, Figure 1)" [emphasis added]. The portion of Kayser cited by the examiner states:

> In an additional embodiment of the present invention, the roller stack or stacks are arranged in-line (i.e., in series) with a paper machine or a coating machine. The paper web is thus at a relatively high temperature at the intake nip of the calender (e.g., 60.degree. C.) and therefore the web only requires a slight addition of heat to provide sufficient deformation. Plastic coverings, which are already desirable because of the higher compressive stresses that they can withstand, are particularly suitable for in-line operations, because, in contrast with coverings made of fibrous material, they are significantly less susceptible to marking. Therefore, plastic coverings rarely need to be removed and reworked, for example, by grinding. Calenders comprised of two roller stacks have the additional advantage of being more suitable for in-line operation, because the running paper web in *each stack is fed through a lower number of working nips*. (col. 3, lines 8–23) [emphasis added.]

In context the "lower number of working nips" refers to the total number of nips in the calenders stacks which are lower in comparison to the super calenders in the prior art (col. 2, lines 28–30). Kayser does refer to adjusting the loading of the nips by adjusting the force acting on the lower roller 14 or the upper roller 10 (Col. 4, lines 22–34), and does imply the nips are opened and closed (col. 3, lines 27–28), and refers to a requirement that at least one

working nip fulfill a particular requirement with respect to nip width, nip dwell time, roll temperature and pressure (col. 1, line 65, col. 2, line 7). But none of these suggest applicant's claimed method of adjusting the number of nips used in the calender along the same paper threading path. It is only by hindsight, viewing the reference through the lens of applicant's disclosure that Kayser appears to be suggesting that the number of working nips is adjusted. In fact, the conventional loading techniques employing the upper or lower rolls 10, 14 shown in the figure of Kayser do not provide any mechanism for achieving applicant's claimed method.

Claim 15 further distinguishes over the applied art by claiming a method of changing paper grades by adjusting the calender while the paper web continuously passes along the threading path. Kayser nowhere suggests this nor has the examiner articulated a rationale for why this step would be known to those skilled in the art.

Claim 16, as amended for clarity, further distinguishes over the applied art by setting forth the production of two distinct webs by increasing or decreasing the number of nips formed by the calender.

Claims 31 and 32 claim the production of paper over the entire range of Hunter Gloss and PPS shown in FIG. 2 of the specification without modifying the threaded path of the paper web. While the nip pressures can be adjusted in Kayser, there is no indication in the prior art that without varying the number of nips the paper grades can be adjusted over the claimed range, and the examiner has provided no reasoned explanation of why applicant's calendering method, including the range of paper grades, is obvious.

Claims 33 and 37 claim the process of opening or closing a pair of rolls with an actuator positioned between support arms such as illustrated in FIG. 3. The examiner has provided no reasoned explanation of why applicant's method of opening and closing nips in a roll stack is obvious.

Claims 34 and 38 claim the process of opening or closing a pair of rolls with an actuator as illustrated in FIG. 4. The examiner has provided no reasoned explanation of why applicant's method of opening and closing nips in a roll stack is obvious.

Claim 35 and 39 claim the process of opening or closing a pair of rolls with an actuator as illustrated in FIG. 5. The examiner has provided no reasoned explanation of why applicant's method of opening and closing nips in a roll stack is obvious.

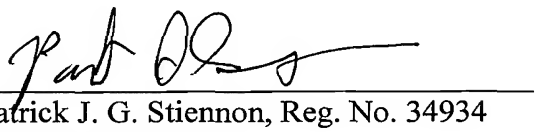
Claims 36 and 40 claim the process of opening or closing a pair of rolls with an actuator as illustrated in FIG. 6. The examiner has provided no reasoned explanation of why applicant's method of opening and closing nips in a roll stack is obvious.

Claims 14 and 28–30 add additional limitations which, in combination with the claim from which they depend, further distinguish over the art of record.

Applicant believes that no new matter has been added by this amendment.

Applicant submits that the claims, as amended, are in condition for allowance. Favorable action thereon is respectfully solicited.

Respectfully submitted,



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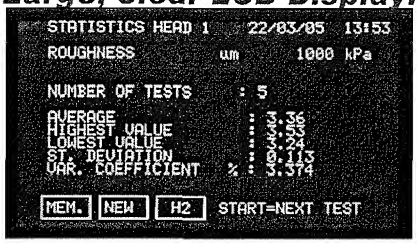

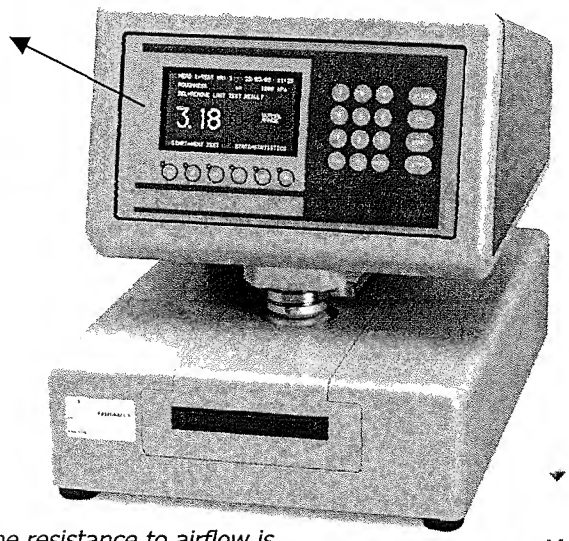

Developed from Dr. John Parker's original method, the Parker Print-Surf is a microprocessor-controlled instrument, which performs high speed, precision measurements of paper surface roughness under conditions that simulate those encountered during the printing process.

The specimen is clamped between a precision engineered measuring head and a specially designed backing assembly. The resistance to airflow is measured and converted to a mean roughness value in micrometers.

In its latest form the instrument offers extended ranges of clamp pressure and measurement capability, together with a dual-head option for increased testing efficiency. This versatile instrument provides the information you need to avoid time-consuming, costly printing problems.

- Membrane keypad operation
- Dust purger
- Automatic specimen detection
- One-touch statistics display
- Built-in diagnostic routines
- Built-in calibration routine for plastic and paper reference standards
- Calibration device included
- Dual range to measure rougher samples
- Extended clamp pressure range for better printing simulation
- Measures roughness both sides or roughness/air permeance simultaneously (Dual Head Model only)

Applications:

ne paper, coated paper, newsprint, coated board, linerboard, films and foils, printing/graphics, packaging, carton board.

Specifications:

- Number of measuring heads: One or two (58-07-00-0001)
- Roughness range-normal: 0.20 - 6.50µm
- Roughness range-high: 6.0 – 15.0µm
- Air permeance range - ISO 5636/1: 0 – 14.5µm.Pas
- Air permeance range – Bendtsen equivalent: 0-10000ml/min
- Air permeance range- Gurley equivalent: 1-6000s
- Clamp pressures – preset: 500, 1000, and 2000kPa
- Clamp pressures – custom setting: 100 – 5000kPa
- Conforms to ISO 8791/4 and TAPPI T555

Dimensions:

Depth: 558mm (22in)
Height: 430mm (17in)
Width: 380mm (15in),
476mm (18.7in)- dual head model

Optional Accessories:

Calibration disc set
Thermal mini-printer
Test-Link data acquisition software

Connections:

Electrical: 110VAC, 60Hz, 150VA
220 VAC, 50Hz, 150VA
Air: 550-700 kPa (instrument quality)

Alternative Language Options:

French, German, Spanish or Finnish

Ordering Information:

Single Head Model: Catalog #58-06-00-0001
Double Head Model: Catalog #58-07-00-0001

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John Parker.

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This year marks the passing of John Parker, inventor of the Parker Print Surf Roughness Tester and internationally recognized paper scientist. After graduating from Sidney Sussex College, Cambridge, England, in 1952, Parker joined the Bowater organization, working on various technical issues, including calendar barring and basis weight studies. The Print Surf instrument was developed in 1964 in response to a need to effectively predict printability of newsprint. The patented technology used in the instrument was licensed to Messmer Instruments, now part of the TMI Group of Companies, who developed it commercially and marketed it worldwide.

[ILLUSTRATION OMITTED]

In 1978 Parker's original work on the Print Surf and other aspects of paper science resulted in the award of a Ph.D. by the Faculty of Engineering, Cambridge. Parker joined the staff of Messmer Instruments in 1989, where he led a team that developed a novel online web monitoring system as well as continuing to refine the Print Surf instrument. Mike Moore, a principal scientist of the TMI Group, says, "It was always an inspiration to work with John. His great depth of research experience meant that he could make a major contribution to every phase of a project and he was able to explain complex ideas in a way that everyone involved could understand."

When Parker retired in 1997, he had published over 40 papers and contributed to many international conferences on paper technology as an organizer or participant. His development work on the Parker Print Surf, PPS roughness unit resulted in test methods which are currently published in ISO and TAPPI. He was elected a TAPPI Fellow in 1991.

NOTE: All illustrations and photos have been removed from this article.

ASTM D1223-93(2006) Print

ASTM D1223-93(2006) Standard Test Method for Specular Gloss of Paper and Paperboard at 75°

Developed by Subcommittee: D06.92 |**Book of Standards Volume:** 15.09

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Significance and Use

This test method is widely used as a partial measure of the surface quality and shiny appearance of coated paper.

1. Scope

1.1 This test method is for measuring the specular gloss of paper at 75 (15 from the plane of paper).

1.2 Although its chief application is to coated papers (), this test method may also be used for uncoated papers.

1.3 This test method is not a measure of image-reflecting quality and should not be used for cast-coated, lacquered, highly varnished (, ,)or waxed papers (), and high-gloss ink films (). For these purposes, TAPPI T 653 "Specular Gloss of Paper and Paperboard at 20 Degrees" is preferred, although the present method has been shown to be suitable for gloss measurements of most other ink films on paper or paperboard. Here, differences in the color and the diffuse reflectances of these ink films have a negligible effect on measured gloss. For example, on comparing white and black surfaces which are otherwise identical, the white surface will measure less than one gloss unit higher than the black.

This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

D585 Practice for Sampling and Accepting a Single Lot of Paper, Paperboard, Fiberboard, and Related Product
D685 Practice for Conditioning Paper and Paper Products for Testing
T 1200 Interlaboratory evaluation of test methods to determine TAPPI repeatability and reproducibility

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Index Terms

coated paper; gloss; paper; paperboard; specular gloss; uncoated paper; ICS Number Code 85.060;

Specular Gloss of Paper and Paperboard at 75 Degrees, Test Method T 480 om-05

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This method is for measuring the specular gloss of paper at 75° (15° from the plane of paper). Although its chief application is to coated papers (1), it is also used for a variety of uncoated papers.

This method is suitable for low- to high-gloss papers. For very high-gloss papers such as cast-coated, lacquered, highly varnished (2-4) or waxed papers (5), and high-gloss ink films (6), TAPPI T 653 "Specular Gloss of Paper and Paperboard at 20 Degrees" is preferred. T 480 has been shown to be suitable for gloss measurements of most ink films on paper or paperboard. Differences in the color and diffuse reflectances of these ink films have a negligible effect on measured gloss. For example, when white and black surfaces which are otherwise identical are tested, the white surface will measure less than one gloss unit higher than the black.

This method does not measure image-reflecting quality.

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Color of paper and paperboard (d/0, C/2), Test Method T 527 om-07
Zero-span breaking strength of pulp (dry zero-span tensile), Test Method T 231 cm-07
A Comparison of Metering Elements for Producing Double-Coated Paperboard, 2004 Coating and Graphic Arts Conference
A Multiphase Mechanism for Setting and Gloss Development of Offset Ink, 2006 TAPPI Advanced Coating Fundamentals Symposium
A New Analytical Model for Impact and Spreading of One Drop Application to Inkjet Printing, 2006 TAPPI Advanced Coating Fundamentals Symposium
A Novel Talc Pigment for Paper Coatings, 2005 TAPPI Coating Conference
A Re-Evaluation of Factors Controlling Print Rub on Matt and Silk Coated Papers, 2006 Coating & Graphic Arts Conference
A Review of Photographic Ink Jet Media; Types; Structure and Performance, 2005 TAPPI Coating